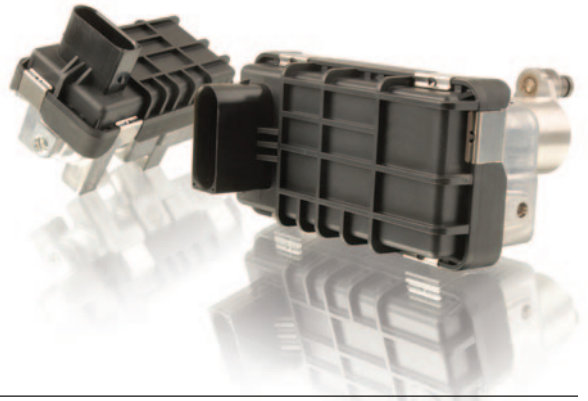
REA/SREA/UTA SMART/UTA SIMPLE FAILURE MODES

What are *REA/SREA/UTA Smart/UTA Simple*?

REA (Rotary Electronic Actuator) or SREA (Simple Rotary Electronic Actuator) are fitted to a variety of different variable geometry turbos and control the variable vane movement. This article explores the causes and the signs of *REA/SREA/UTA Smart/UTA Simple* failure to help you identify this failure mode when repairing.



Why do *REA/SREA/UTA Smart/UTA Simple* electronic actuators fail?

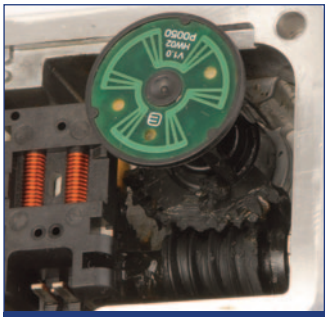
REA/SREA/UTA Smart/UTA Simple electronic actuators are highly complex and intricate. They are not interchangeable with different gearboxes or black caps. The calibration settings are programmed in the software within the black cap and are unique to each turbocharger. The majority of *REA/SREA/UTA Smart/UTA Simple* failures are identified by the engine management systems. However, the electronic actuator may not be the primary cause of turbocharger failure, it is likely to be another underlying reason that caused the failure.

Causes of *REA/SREA/UTA Smart/UTA Simple* electronic actuators failure:

- **Gearbox Failure** - *REA/SREA/UTA Smart/UTA Simple's* will fail if the nozzle ring assembly has any form of restiction, this could be due to sludging or carbon build-up. When the nozzle ring assembly is restricted, it pulls a higher current through the motor than it is designed to take, this therefore causes the motor to burn out or the plastic worm gears to fail. This restriction can reduce boost pressure and can result in the vehicle being put into 'limp home mode'. In most failures, the black cap and electronics are unaffected by the gearbox failure and can be reused
- **VNT System Fails/Seize** - Caused by sludge or carbon build up around the VNT blade system
- **Damage to the Board Connectors** - The connectors can break through expansion and contraction with heat. Connectors can also appear to be workinig fine when cold but once the engine warms up a fault can appear
- **Mishandling of the Turbo** - If the turbo connector is knocked or banged, it will break and the whole unit will need replacing
- **Water Ingress** - The location of a turbo in the engine compartment can mean the electronic actuator is more susceptible to water ingress. The actuator can become rusty and contaminated, giving the wrong signals and ultimately breaking
- **Engine Vibration** - Constant vibration from the vehicle could wear out components within the electronic actuator, causing it to fail over a period of time



Worm gear failure due to restricted VNT mechanism



CIPOS gear, worm gear and motor failure. A complete gearbox is required with failures of this nature.

For further information on this or other topics, visit www.melett.com/technical / technicalsupport@melett.com

bsi ISO 9001 Quality Management Systems CERTIFIED FS 535592

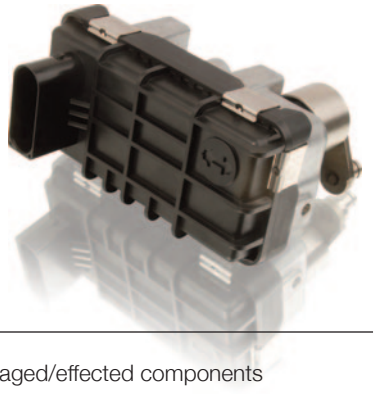
Copyright © 2027 Melett. All rights reserved. The Melett Logo and Melett® are registered trademarks or trademarks of Melett Limited.

A BMTS Technology company
BMTS TECHNOLOGY

REA/SREA/UTA SMART/UTA SIMPLE FAILURE MODES

Signs of *REA/SREA/UTA Smart/UTA Simple* electronic actuators failure:

- Engine management light or other warning lights
- A complete loss of power, causing the vehicle to go into limp-home mode
- Low boost
- Over boost
- Noise from the turbocharger
- Fault codes



Preventing turbo failure caused *REA/SREA/UTA Smart/UTA Simple* electronic actuators failure:

- When repairing electronic actuators, you need to change all the damaged/effected components
- Check all connecting wires
- Ensure bolts are tightened to the correct torque setting
- Check VNT mechanism for restrictions
- Check the wiring harness condition
- Check black cap is free from damage

TURBO TIPS

When repairing the electronic actuator the worm gear and motor must be the correct ratio to avoid immediate failure.

If you are going to carry out a repair on an electronic actuator, you must replace the motor and gearbox together for the correct gear ratio.

REA actuators must be calibrated to the turbo after repair. Incorrect calibration of the electronic actuator when assembled on the turbocharger can result in poor performance of the turbocharger.

Soldering to repair broken connections in the gearbox and black cap is not advised. Solder is susceptible to cracking in environments with temperature variance and vibration. For this reason, the motor and motor choke assembly connector must be spot welded.

For further information on this or other topics, visit www.melett.com/technical / technicalsupport@melett.com

bsi ISO 9001 Quality Management Systems CERTIFIED FS 535592

Copyright © 2027 Melett. All rights reserved. The Melett Logo and Melett® are registered trademarks or trademarks of Melett Limited.

A BMTS Technology company
BMTS TECHNOLOGY